CBSE

THERMODYNAMICS WS 2

Class 11 - Physics

Section A

1. Choose the correct option. **[1]**

   i. Zeroth law gives the concept of temperature

   ii. Temperature measures the 'hotness' of the body

   iii. Heat flows from higher temperature to lower temperature until thermal equilibrium is attained

   iv. All of the above

   a) Statement (iii) is correct.
   b) Statement (ii) is correct.
   c) Statement (i) is correct.
   d) Statement (iv) is correct.

2. **Assertion (A):** Zeroth law of thermodynamic explain the concept of energy. **[1]**
   Reason (R): Energy is dependent on temperature.

   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.

3. **Fill in the blanks:** **[1]**

   (a) According to zeroth law of thermodynamics, _____ is a physical quantity that has the same value for all systems which are in _____ equilibrium with each other. **[1]**

4. Two bodies at different temperatures T_1, and T_2 are brought in thermal contact does not necessarily settle down to the mean temperature of T_1 and T_2? **[1]**

5. Does the mass of a body change when it is heated or cooled? **[1]**

6. What is critical temperature? How will you differentiate between a gas and a vapour depending on critical temperature? **[1]**

7. Can a system be heated and its temperature remains constant? **[1]**

8. What does the Zeroth law of thermodynamics tell us about measuring the temperature of an object? **[1]**

Section B

9. Two rods A and B are of equal length. Each rod has its ends at temperature T_1 and T_2 ($T_1 > T_2$). What is the condition that will ensure equal rates of flow through the rods A and B? **[2]**

10. What is thermodynamic equilibrium? How is it different from mechanical equilibrium? **[2]**

Section C

11. State and prove the Zeroth Law of Thermodynamics. **[3]**